Exploring the Prospects of the Construction Industry for Youth: The Role of Technology and Educational Reform

Andrew F. McDonough

European Institute of Management and Technology, Cham, Switzerland
Email: andrewmcdonough@hotmail.com (A.F.M.)
Manuscript received July 11, 2025; revised August 20, 2025; accepted September 9, 2025; published February 9, 2026

***Abstract*—The construction sector is rapidly digitizing across the globe; however, a significant gap exists in research and practice regarding how technology and changes in education can attract and retain young professionals. The building construction industry is getting increasingly impaired in finding and keeping young practitioners, especially in a period of rapid computer changeover and evolving expert ideals. The study uses a quantitative research approach and identifies six important variables: Perception of Technology in Construction (POT), Educational Reform and Curriculum Integration (ERCI), Innovative Teaching and Learning Methods (ITLM), Attractiveness of Construction as a Career (ACC), Perceived Barriers and Facilitators (PBF), and Future Outlook and Industry Resilience (FOIR). A representative sample of 383 respondents was then given a well-designed questionnaire, and the data were examined using multiple regression models to determine the factors that affect career interest in the construction industry. This conclusion supports the claim that Educational Reform and Curriculum Integration, Innovative Teaching and Learning Methods, and the Attractiveness of Construction as a Career have the strongest impact on the preferences concerning career, which justifies the importance of the modernization of the curriculum and learning based on simulations. Conversely, employee dissatisfaction with working conditions and insufficient access to technological innovations in the construction industry have become demoralizing factors among construction workers. The study provides insights into practical means that can be adopted by teachers, industry stakeholders, and policymakers to encourage strategic integration of the education system with the digital construction sector to generate a sustainable and future-oriented workforce.**

***Keywords*—construction careers, youth prospects, digital skills, educational reform, technology integration**

I. Introduction

The construction industry has long been perceived as a labor-intensive industry with a heavy reliance on traditional work delivery and labor management practices. It is therefore a self-evident fact that the construction industry, too, has been dramatically altered in some way or another over the past few years due to sudden technological revolutions and paradigm shifts in education [1]. Despite global trends in digitalization, there remains an overwhelming gap in understanding how the conjectural impacts of technology adoption and education system changes influence the career decisions of young people in the construction sector. There is an urgent necessity in the sector to retain and attract young professionals, which is further aggravated by rapid digital transformation, intensified competition with other sectors, and changes in career aspirations [2], unlike other studies, which have examined either technological uptake [3] or the educational reform initiative [4]. However, the intertwining of the two has been largely neglected. In this respect, the requirement of the moment in terms of creating a sustainable, future-proof workforce is the integration of emergent technological innovation with educational reform. This issue is given increased urgency by the global lack of labour and the perception that building is not as good a career choice as other areas of knowledge work. A redefinition of the industry matches the workforce deficit in the United Kingdom as a place where people can find an exciting, dynamic, and sustainable career rather than a declining craft [4]. These trends are also common across the world, where young professionals are more inclined to disregard careers in construction even though the industry is embracing digital technologies such as Building Information Modelling (BIM), Artificial Intelligence (AI), and robots at an accelerating pace [4, 5]. Although past researchers have only discussed siloed aspects of either curriculum change or digitalization, this study develops and empirically verifies an integrated model that explores six interconnected aspects, such as Perception of Technology in Construction (POT), Educational Reform and Curriculum Integration (ERCI), Innovative Teaching and Learning Methods (ITLM), Attractiveness of Construction as a Career (ACC), Perceived Barriers and Facilitators (PBF), and Future Outlook and Industry Resilience (FOIR). Using a massive quantitative comparison of 383 participants, this research provides fresh insights into how technology and education intersect to shape the career interests of young people in the construction sector.

The theoretical underpinning for undertaking this research stems from two directions. First, through the measurement of construction industry perspectives on technological assimilation, the research attempts to evaluate how digital approaches affect operational proficiency, safety attributes, and business appeal [5]. Second, the research evaluates the effectiveness of educational reform by examining how curricular reform, incorporating practical training and simulation-based education, can better equip prospective professionals in a technology-intensive world [6].

Consequently, the research here seeks to create a comprehensive model that not only responds to short-term workforce issues but also enhances the long-term sustainability of the industry by connecting innovation with education reform. It provides valuable insight to educators, policymakers, and industry professionals regarding how to advance construction as a viable, innovative, and forward-thinking career path.

This research has been designed to achieve four specific research objectives. First, the study examines the appeal of construction careers to youth. The second goal is related to the capacity of the students to show their ability. Third, the proposed research will confirm the role of technology as a determinant in career aspirations. Finally, the paper applies regression analysis to determine the extent to which reform, creative instruction, and industry resilience are better predictors of career appeal than perceived barriers. These objectives show how important the relationship between innovation and technology in education is to the future construction industry workforce.

II. Literature Review

The construction industry is one of the pillars of economic growth in recent decades and has been the main driver of infrastructure development and urbanization. Nevertheless, the complexities of this industry now include an ageing workforce, a lack of young people to enter the industry, and the deep-rooted negative views about the nature of work in construction [5]. Historically, job creation has been considered something necessitating manual effort and technology, and also little career advancement. These impressions have made young people not see the construction industry as a good career choice, worsening the situation of labor shortages in the labor market [6]. In the meantime, planning, management, and execution of construction projects are changing because of the increased pace of digital technology development, including BIM, robotics, AI, and AR. Technology is enhancing the efficiencies and safety of operations in the industry and transforming the nature of work [7]. Consequently, there is increased awareness that the introduction of these technologies as a common practice can greatly change the image of the sector and attract more heterogeneous and tech-savvy staff [8]. One such tool is BIM, which, in addition to providing the right 3D representation and data management capabilities, improves project planning and project coordination among the stakeholders. Evidence indicated that BIM increased the accuracy of the design and minimized mistakes in the project, thus making the project more efficient [9]. Robotic platforms can do tasks more effectively and with higher accuracy than humans (self-bricklaying machines) can, thus saving time on construction and minimizing errors. Conducting site surveys through drones and driverless cars makes the work safer and more efficient, and the same applies to [10]. AI in construction has been applied in predictive analytics in project management, risk assessment, resource planning, etc. AI algorithms have the capacity to process a significant amount of data to identify possible delays, streamline scheduling, and make cost-saving choices. It is possible to analyze the data on-the-fly with the BIM integration and make an active decision and manage the resources in the most efficient way [11]. These computer technologies have significantly increased the efficiency of work in construction projects. Real-time monitoring of IoT devices allows assets to be managed more effectively and minimises equipment downtime. Automation of activities results in quick project completion and cost savings [12]. Besides, the use of the newest technologies helps to improve the quality of constructions, which leads to long-term and stable buildings. Besides operational advantages, the computerization of the construction industry has a positive impact on how the population views the construction industry. The implementation of new technologies positions the industry as progressive and visionary, appealing to the highly technological-oriented human resources and transforming the image of construction into a manual industry [13]. This transformation is crucial in addressing the issues affecting the sector, owing to an ageing population coupled with the need to engage with the younger generation [14]. With the high rate of technological development in the field, learning in the construction field has fallen behind [7]. The traditional programs lack components that address the new technologies, thus leading to a skills gap in the graduates [15]. This kind of misfit influences the readiness of new specialists to work in accordance with the existing construction practice, as in [16]. The digital technologies (BIM, VR, and AR), therefore, need to be included in the construction education. The technologies provide students with a realistic experience and knowledge about modern construction operations. Based on this case, VR and AR sims can even enable learners to simulate virtual construction sites to practice their spatial perception and solution-finding skills [17]. Multidisciplinary education also plays an important role—the combination of fundamental engineering principles with information technology, digital design, and sustainability [18]. Good integration of this nature can furnish students with all the details on how they can use technology to solve real-life construction issues. These are dynamic and adaptable kinds of curriculum that can adjust to the changing nature of the world of construction. Effective partnerships among players in the industry and institutions of higher learning are essential to effective curriculum innovation [19]. Co-developed courses, workshops conducted by industry professionals, and internship opportunities are all examples of joint programs that ensure the content covered in the classroom is up-to-date and corresponds to modern industry practices. These partnerships expose students to the world of practice and allow the exchange of practical knowledge between the industrial sector and the academic sector [20]. Experiential and immersive learning methodologies are emerging as innovative approaches to teaching in the construction education field. VR and AR technologies allow creating interactive learning conditions in which students can simulate construction processes and scenarios. This approach improves interest, memory, and the real-world use of theoretical knowledge [21]. Project-Based Learning (PBL) concerns the construction of projects (physical or imaginary) by students that enhance their critical thinking and collaboration skills. Learning, integrating online digital media with conventional face-to-face teaching, provides flexibility and responds to varied learning needs [22].

The construction sector has traditionally been perceived as physically demanding and offering limited career development opportunities. Such stereotypes discourage future entrants, especially from the younger generation. Adopting advanced technology and contemporary learning styles can change this by revealing the sector's dynamic and innovative aspects [23]. Highlighting the wide range of career choices in the technologically advancing construction industry can make it more appealing. Jobs in BIM management, construction technology, and sustainability consultancy emphasize the field beyond its conventional manual labor [24].

Oti-Sarpong [20] identified various challenges to the widespread adoption of digital technologies and educational reforms in the construction sector. There are significant challenges, including high implementation costs, change resistance, and insufficient qualified personnel. The combination of academic learning and on-site training, or dual education, has yielded some encouraging outcomes in bridging the gap between theory and practice [25]. Additionally, students gain a deeper understanding of career prospects under such systems, as well as a lower dropout rate in construction-related studies. In this way, the literature identifies the challenge of ensuring the entry of young people into construction professions, primarily through an inefficient use of outdated perceptions and the failure to align education and industry demands. Although certain past studies have investigated either education reform or technological innovation, few have combined the two approaches to examine the appeal of careers.

Sector-wide best practice sharing and benchmarking must be promoted further to facilitate the shift towards digitalisation and educational reform. Organizations that successfully implement digital construction tools and training programs can serve as role models for others. Sharing pilot projects and case study results can minimize uncertainty and encourage reluctant stakeholders. Moreover, cross-country cooperation, particularly in the European Union through programs such as Erasmus+ and the European Construction Sector Observatory, enhances knowledge transfer and learning from one another [25].

Wider economic and regulatory environments also shape the construction industry's digital transformation. Initiatives such as the UK's "Construction 2025" plan [26] and the EU's "Digital Europe Programme" [27] are examples of efforts to accelerate innovation adoption through policy mechanisms, research grants, and public-private collaborations. The linkage between the education system and industry demand is more vital than ever. A mismatch in graduate capability and employment expectations can lead to workforce ineffectiveness and increased company onboarding costs [28]. To address this issue, competency-based learning models are now proving to be a strategic approach. These models focus on the achievement of precise, industry-dictated skills rather than time-based education, allowing graduates to meet functional expectations upon entering the labor market [28]. Further, industry engagement in curriculum formation through advisory boards, guest speakers, and joint research ensures that academic programs remain responsive and flexible [29]. Also, there is no established standardisation of protocols surrounding technology integration, and no adequate support exists from regulatory authorities, making the process difficult to adopt [14]. On the other hand, industry adoption may be assisted by organizational support, government policies, and incentives. Organizations can be encouraged to become innovative by investing in training, providing people with economic incentives to use the technology, and creating clear regulatory models. It is also worth noting that a culture of lifelong learning and versatility must be fostered to ensure successful implementation. This literature review provides a study gap by exploring how curriculum reform within education, innovative pedagogical approaches, and technological change collectively affect the perception of careers. By so doing, it makes contributions to the scholarly discourse and policy discourse on workforce sustainability in construction.

III. Materials and Methods

This research employs a quantitative design to systematically investigate the factors influencing the intentions of young professionals and students to pursue careers in the UK construction sector. The study investigates how Perception of Technology in Construction (POT), Educational Reform and Curriculum Integration (ERCI), Innovative Teaching and Learning Methods (ITLM), Attractiveness of Construction as a Career (ACC), Perceived Barriers and Facilitators (PBF), and Future Outlook and Industry Resilience (FOIR) influence career choices. By adopting a structured survey method, the current study enables the objective measurement of key variables and provides statistical analysis to identify trends, relationships, and underlying forces. Quantitative design is especially applicable to the research because it facilitates the gathering of measurable, comparable, and generalizable data necessary to derive significant conclusions regarding the attractiveness of the construction industry to the next generation [30, 31]. The target group comprises respondents closely associated with academia and industry and constitutes the current and future workforce in the construction industry. University students, recent graduates, and people who are either studying something related to construction or are considering taking up a career in the industry are also included in the study [3]. Stratified random sampling is used to give representative diversity. This method will divide the respondents based on the most significant demographic factors [32] such as education level and construction career exposure. Stratified randomized sampling considers that respondents from various backgrounds, such as academic and professional, have been equally involved in the study, ensuring bias minimisation and validity enhancement of the outcome. The formula used by Cochran can guarantee both statistical power and representativeness to decide on the suitable sample size [33]. Given the estimated total population of young professionals and students interested in construction careers in the UK (approximately 500,000 individuals), the study adopts a 95% confidence level with a margin of error of 5%, resulting in a minimum required sample of approximately 383 respondents.

The data collection instrument is a structured self-administered questionnaire. The questionnaire is developed from an extensive literature review and prior models employed in investigating career decision-making in the construction context. The ultimate survey comprises three sections, each addressing a distinct aspect of career decision-making. Data is collected using a mixed-mode method, both online and offline delivery of the survey, to achieve high response rates. The web survey is distributed through websites like Google Forms and Qualtrics, whereas offline distribution is achieved through universities, career days, and industry networking events. Academic institution collaboration, professional society partnerships, and construction company collaborations provide targeted delivery to individuals already planning to pursue a career in the construction industry. To establish validity, the instrument was reviewed by subject experts from both academia and industry, ensuring content accuracy, clarity, and relevance. Reliability was tested through a pilot study with 30 participants, and Cronbach's alpha values for all major constructs exceeded the recommended threshold of 0.70, confirming satisfactory internal consistency.

Table 1. Variable-wise reliability statistics

Variable Name	Cronbach's Alpha	*N* of Items
ACC	0.803	5
POT	0.796	5
ERCI	0.771	5
ITLM	0.813	5
PBF	0.771	5
FOIR	0.814	5

Source: Author's estimation

Table 1 presents the reliability statistics for the modelled variables, assessed using Cronbach's Alpha. All variables exceeded the accepted reliability threshold of 0.70, indicating strong internal consistency. Specifically, FOI and ITLM showed the highest reliability scores (0.814 and 0.813, respectively). At the same time, PBF and ERCI had reliability coefficients of 0.771. The Attractiveness of Construction as a Career (ACC) and Perception of Technology (POT) also demonstrated strong reliability, scoring 0.803 and 0.796, respectively.

To ensure high response quality and accuracy, the survey is pre-tested on a pilot group of 30 participants to verify that the questions are clear, valid, and reliable. The research is conducted ethically to safeguard the rights and confidentiality of participants. Responses are analyzed using IBM SPSS upon completion of data collection for a thorough statistical analysis. The research employed diverse analytical methods, including reliability testing, descriptive statistics, correlation analysis, and multiple regression analysis.

IV. RESULT

The section represented the findings and analysis. Table 2 below summarizes the profiles of 383 respondents, including major demographic details of the gathered sample.

In terms of age, the distribution was reasonably balanced across all groups, with the highest representation from individuals aged 55 and over (18.3%), followed closely by the 18–24 and 35–44 age brackets (each 18.0%). Those under 18 comprised 15.7%, and the 25–34 and 45–54 categories accounted for 16.7% and 13.3%, respectively. Gender distribution was almost even, with females comprising 49.3% and males 50.7% of the sample. Regarding educational level, the most common qualifications included vocational training or technical qualifications (19.6%), followed by bachelor's degrees in construction or engineering (17.8%), associate degrees (17.2%), and high school diplomas (17.2%). A smaller proportion held master's degrees or higher (13.6%), while 14.6% reported other qualifications.

Regarding the current field of study or work, the participants came from diverse backgrounds. The most represented field was "Other" (21.7%), followed by business and management (21.1%), information technology (19.6%), architecture and design (19.1%), and construction and engineering (18.5%). Regarding experience, the largest share of respondents reported having full-time work experience (22.2%), followed by those with no prior experience (21.1%), academic involvement (19.3%), internships or short-term placements (17.8%), and other forms of experience (19.6%).

Table 2. Summary of demographic indicators

Variable	Category	Frequency	Percent
Age	Under 18	20	5.2
	18–24	95	24.8
	25–34	102	26.7
	35–44	60	15.7
	45–54	51	13.3
	55 and over	54	14.1
Gender	Female	189	49.3
	Male	194	50.7
Education Level	High school diploma or equivalent	66	17.2
	Vocational training/Technical qualification	75	19.6
	Associate's degree in construction-related	66	17.2
	Bachelor's degree in construction/engineering	68	17.8
	Master's degree or higher in related fields	52	13.6
	Other	56	14.6
Current Field	Architecture/Design	73	19.1
	Business/Management	81	21.1
	Construction/Engineering	71	18.5
	Information Technology	75	19.6
	Other	83	21.7
Experience	Academic involvement	74	19.3
	Full-time work experience	85	22.2
	Internship/Short-term placement	68	17.8
	None	81	21.1
	Other	75	19.6
Total		**383**	**100**

Source: Author's estimation

Fig. 1 highlights the most influential career factors perceived by respondents. The availability of training in digital skills, innovation, and the use of modern technology, and job stability with career growth opportunities received the highest frequency, indicating that young professionals prioritize career development opportunities alongside exposure to technological innovation. Conversely, workplace safety and working conditions ranked comparatively lower, suggesting that despite its importance, it is not the foremost determinant of career choice. This aligns with prior studies, which indicate that the younger workforce tends to be more attracted to professional growth and innovation opportunities rather than traditional safety-focused incentives.

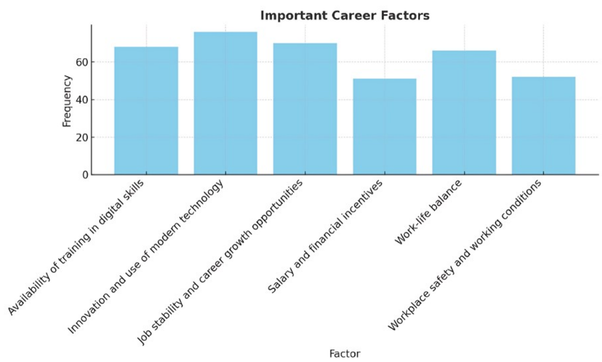

Fig. 1. Important career factors influencing the construction workforce.

Fig. 2 shows respondents' evaluation of educational preparation for construction careers. The majority selected ratings 4 and 5, confirming that they perceive their educational programs as providing substantial preparation for future professional roles. However, a small but significant portion rated their preparation at 1 or 2, which indicates gaps that may stem from limited exposure to practical skills or simulation-based learning. This finding reinforces the need for curriculum modernization and integration of digital tools to bridge the preparation gap.

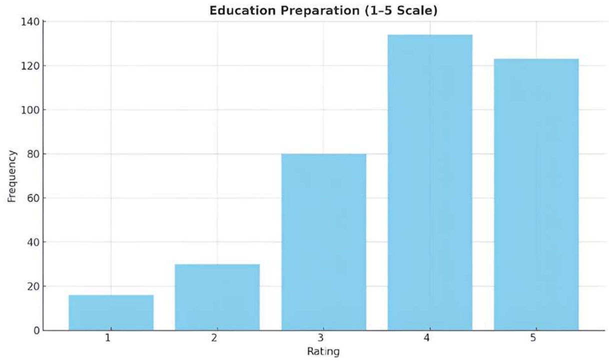

Fig. 2. Respondents' perceptions of educational preparation.

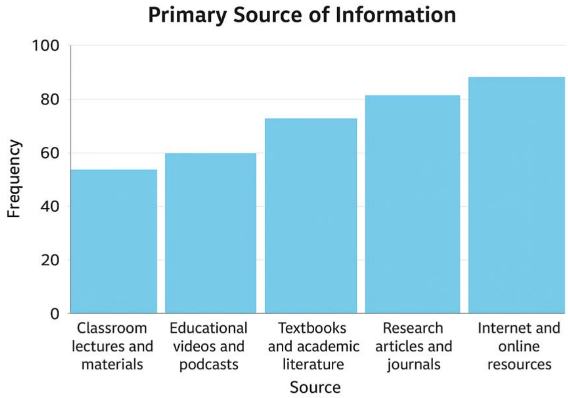

Fig. 3. Primary sources of information about construction careers.

Fig. 3 demonstrates that word-of-mouth from industry professionals and educational institutions/career advisors is the most common source of career information. Meanwhile, industry publications and social media platforms play a relatively smaller role. This suggests that personal networks and institutional guidance remain dominant in shaping career choices, underlining the importance of industry–academia partnerships. Moreover, the limited reliance on social media highlights a missed opportunity for the construction industry to leverage digital platforms to attract young talent.

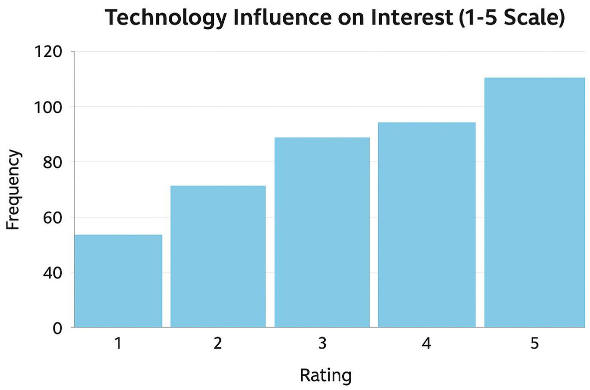

Fig. 4. Technology influence on interest n.

The results presented in Fig. 4 demonstrate that technology plays a significant role in shaping learners' interest. Very few respondents rated technology's influence as "1" or "2," which suggests that only a small proportion view technology as having little or no impact on their motivation. A moderate number rated it as "3", reflecting a neutral stance where technology has some but not overwhelming importance. However, the most striking finding is that the majority of respondents selected ratings of "4" and "5." This clearly indicates that technology is perceived as a highly influential factor in stimulating and sustaining interest. This result implies that educational institutions and professional training programs must recognize technology as a central driver of engagement. Incorporating digital tools, simulations, and innovative platforms is not optional but essential if they aim to maintain learners' enthusiasm and enhance the effectiveness of teaching and learning processes.

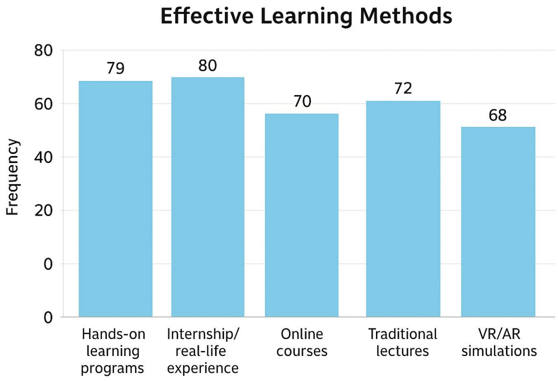

Fig. 5. Effective learning methods.

Fig. 5 provides insights into the learning methods participants consider most effective. The findings show a strong preference for practical and experience-oriented approaches, with hands-on workshops and training programs, as well as interactive site experiences, emerging as the most highly valued. This highlights the importance of direct engagement and active participation in the learning process. Online courses and traditional lectures, while still relevant, were rated slightly lower, suggesting that learners perceive these methods as less impactful compared to experiential learning. Interestingly, VR/AR simulations also received a notable share of responses, though lower than other methods, which may reflect limited exposure or accessibility rather than a lack of interest. Overall, the results emphasize that learners benefit most from approaches that allow them to apply knowledge in real-world settings. Educational providers should therefore prioritize experiential learning while simultaneously exploring innovative digital methods as complementary tools.

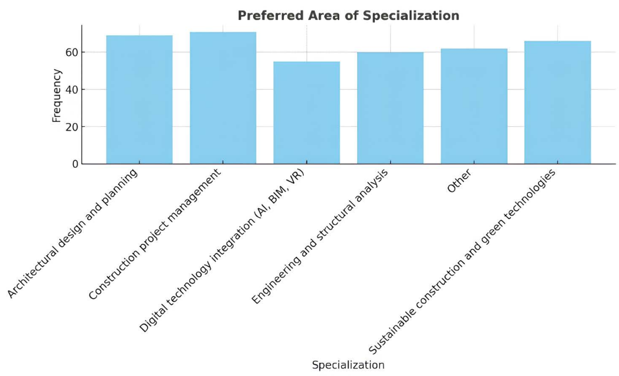

Fig. 6. Preferred area of specialization figure.

The data in Fig. 6 reveal respondents' preferred areas of specialization within the field. Architectural design and planning, along with construction project management, stand out as the most popular choices, reflecting continued interest in the traditional and core areas of the built environment. At the same time, there is considerable interest in emerging domains, such as digital technology integration (including AI, BIM, and VR), as well as sustainable construction and green technologies. This shows a precise alignment with global industry trends that prioritize digital transformation and environmental responsibility. Engineering and structural analysis attracted slightly fewer responses but still represents a significant specialization area. Moreover, a substantial number of respondents selected "Other," suggesting the existence of diverse niche interests that go beyond the listed categories. Collectively, these results underscore the need for academic programs to strike a balance between providing a strong foundation in conventional fields and integrating training in modern, technology-driven, and sustainability-oriented areas to meet the evolving demands of industry.

Table 3 provides descriptive statistics for each modelled variable. All variables had a maximum score of 5 and a minimum of 1, indicating full utilization of the response scale. The mean scores for all constructs were relatively high, suggesting generally positive perceptions among respondents. POT had the highest mean (4.318), closely followed by ACC (4.316) and PBF (4.316). FOIR (4.302) and ERCI (4.312) also scored highly, while ITLM had a slightly lower but still positive mean of 4.276. The standard deviations for all variables ranged from 0.581 to 0.610, reflecting a moderate degree of variability in responses.

Prior to the regression analysis, some basic parametric assumptions were verified. Normality of data distribution was also checked with skewness and kurtosis values, all of which were within ±2 acceptable limits. Linearity and homoscedasticity were confirmed through scatterplots of standardized residuals, with no apparent violations. Multicollinearity was checked by using the Variance Inflation Factor (VIF), all of which were less than the five threshold level. These tests verified that the dataset met the assumptions necessary for carrying out regression analysis.

Table 4 shows the results of the correlation matrix with positive and significant relationships between the independent variables and the Attractiveness of Construction as a Career (ACC). According to the estimates, ITLM had the strongest correlation with ACC, with a Pearson coefficient of 0.343. This was closely followed by ERCI at 0.342 and Future Outlook and Industry Resilience FOIR at 0.341. POT also had a notable positive correlation of 0.278 with ACC, whereas PBF had the weakest yet still significant correlation at 0.233. The significance levels for all correlations were below 0.001, suggesting highly reliable relationships. Furthermore, while all independent variables were positively interrelated, the moderate strength of their correlations indicates a low risk of multicollinearity, supporting their simultaneous inclusion in regression analysis.

Table 3. Descriptive statistics

Variable Name	N	Min	Max	Mean	Std. Deviation
ACC	383	1	5	4.316	0.602
POT	383	1	5	4.318	0.596
ERCI	383	1	5	4.312	0.582
ITLM	383	1	5	4.276	0.608
PBF	383	1	5	4.316	0.581
FOIR	383	1	5	4.302	0.610

Table 4. Correlation matrix

Aspects	Variables	ACC	POT	ERCI	ITLM	PBF	FOIR
Pearson Correlation	ACC	1.000	0.278	0.342	0.343	0.233	0.341
	POT	0.278	1.000	0.272	0.315	0.205	0.196
	ERCI	0.342	0.272	1.000	0.395	0.251	0.324
	ITLM	0.343	0.315	0.395	1.000	0.341	0.281
	PBF	0.233	0.205	0.251	0.341	1.000	0.241
	FOIR	0.341	0.196	0.324	0.281	0.241	1.000
Sig. (1-tailed)	ACC	.	0.000	0.000	0.000	0.000	0.000
	POT	0.000	.	0.000	0.000	0.000	0.000
	ERCI	0.000	0.000	.	0.000	0.000	0.000
	ITLM	0.000	0.000	0.000	.	0.000	0.000
	PBF	0.000	0.000	0.000	0.000	.	0.000
	FOIR	0.000	0.000	0.000	0.000	0.000	.
N	ACC	383	383	383	383	383	383
	POT	383	383	383	383	383	383
	ERCI	383	383	383	383	383	383
	ITLM	383	383	383	383	383	383
	PBF	383	383	383	383	383	383
	FOIR	383	383	383	383	383	383

Source: Author's estimation.

The model summary in Table 5 reveals how each model contributed incrementally to explaining the variance in ACC. In the first model, POT alone explained 7.7% of the variance in ACC. When ERCI was added in Model 2, the explained variance increased to 15.4%, showing a clear improvement in model fit. Including ITLM in Model 3 further boosted the explanatory power to 18.9%. Although the addition of PBF in Model 4 resulted in only a slight increase to 19.5%, this change was not statistically significant. The final model, which included all five predictors, explained 23.1% of the variance in ACC, indicating a meaningful combined effect. The Durbin-Watson statistic of 2.057 suggests no significant concerns about autocorrelation in the residuals, strengthening the model's reliability.

Table 5. Hierarchical multiple regression model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		Durbin-Watson			
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.278[a]	0.077	0.075	0.96180477	0.077	31.942	1	381	0.000	2.057
2	0.392[b]	0.154	0.150	0.92219874	0.077	34.429	1	380	0.000	
3	0.434[c]	0.189	0.182	0.90425820	0.035	16.228	1	379	0.000	
4	0.442[d]	0.195	0.187	0.90168635	0.007	3.165	1	378	0.076	
5	0.480[e]	0.231	0.220	0.88300435	0.035	17.164	1	377	0.000	

a. Predictors: (Constant), POT
b. Predictors: (Constant), POT, ERCI
c. Predictors: (Constant), POT, ERCI, ITLM
d. Predictors: (Constant), POT, ERCI, ITLM, PBF
e. Predictors: (Constant), POT, ERCI, ITLM, PBF, FOIR
Source: Author's estimation

According to Table 6, ANOVA estimates show that each step in hierarchical regression added statistically significant predictive value. In the final model, the F-statistic was 22.59, with a significance level of less than 0.001, indicating that the group of variables as a whole significantly predicts ACC.

Table 7 presents the hierarchical multiple regression results that examine the influence of five predictor variables. The analysis was conducted in five steps, with each model incrementally adding a new variable to evaluate its unique contribution to explaining the variance in ACC.

Model 1 represents that POT was used as the only predictor. The standardized beta coefficient was 0.278, and the relationship was statistically significant at $p < 0.001$, which shows that students with better perceptions of technology were likely to see construction as a career that is appealing. This result supports the argument that digitalization and technological progress in the construction industry are attractive options for young people. The model accounted for around 7.7% of the variance in ACC, a modest but significant first effect.

Table 6. ANOVA estimates

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.549	1	29.549	31.942	0.000[b]
	Residual	352.451	381	0.925		
	Total	382.000	382			
2	Regression	58.829	2	29.414	34.587	0.000[c]
	Residual	323.171	380	0.850		
	Total	382.000	382			
3	Regression	72.098	3	24.033	29.391	0.000[d]
	Residual	309.902	379	0.818		
	Total	382.000	382			
4	Regression	74.672	4	18.668	22.961	0.000[e]
	Residual	307.328	378	0.813		
	Total	382.000	382			
5	Regression	88.054	5	17.611	22.587	0.000[f]
	Residual	293.946	377	0.780		
	Total	382.000	382			

b. Predictors: (Constant), POT, ERCI
c. Predictors: (Constant), POT, ERCI, ITLM
d. Predictors: (Constant), POT, ERCI, ITLM, PBF
e. Predictors: (Constant), POT, ERCI, ITLM, PBF, FOIR
f. Dependent Variable: ACC
Source: Author's estimation

Table 7. Coefficient estimates of hierarchical regression

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant	−1.241E-16	0.049		0.000	1.000	–0.097	0.097
	POT	0.278	0.049	0.278	5.652	0.000	0.181	0.375
2	(Constant)	7.513E-17	0.047		0.000	1.000	–0.093	0.093
	POT	0.200	0.049	0.200	4.080	0.000	0.104	0.296
	ERCI	0.288	0.049	0.288	5.868	0.000	0.191	0.384
3	(Constant)	7.700E-17	0.046		0.000	1.000	–0.091	0.091
	POT	0.153	0.049	0.153	3.097	0.002	0.056	0.250
	ERCI	0.218	0.051	0.218	4.267	0.000	0.118	0.318
	ITLM	0.209	0.052	0.209	4.028	0.000	0.107	0.311
4	(Constant)	8.791E-17	0.046		0.000	1.000	–0.091	0.091
	POT	0.145	0.050	0.145	2.935	0.004	0.048	0.243
	ERCI	0.207	0.051	0.207	4.038	0.000	0.106	0.308
	ITLM	0.185	0.053	0.185	3.475	0.001	0.080	0.290
	PBF	0.088	0.050	0.088	1.779	0.076	–0.009	0.186
5	(Constant)	1.768E-16	0.045		0.000	1.000	–0.089	0.089
	POT	0.131	0.049	0.131	2.699	0.007	0.036	0.227
	ERCI	0.162	0.051	0.162	3.146	0.002	0.061	0.263
	ITLM	0.159	0.053	0.159	3.032	0.003	0.056	0.263
	PBF	0.062	0.049	0.062	1.272	0.204	–0.034	0.159
	FOIR	0.203	0.049	0.203	4.143	0.000	0.107	0.300

Source: Author's estimation

With the addition of ERCI to Model 2, the predictive ability of the model was significantly enhanced. The beta for ERCI was 0.288 and was still statistically significant at $p < 0.001$. This emphasizes the significant contribution that new and consolidated curricula, which focus on current industry requirements, make towards raising the interest of students in the construction profession. Interestingly, the beta for POT lowered slightly to 0.200 in this model but was still significant, indicating that although technology is still pertinent, the educational environment within which it is introduced further enhances its influence. The R^2 for the model rose to 15.4%, almost doubling from the initial model, pointing to the enormous role played by curriculum reform in shaping students' career perceptions.

Model 3 incorporated Innovative Teaching and Learning Methods. ITLM had a significant beta coefficient of 0.209, again at $p < 0.001$, showing that engaging, interactive, and practice-oriented pedagogies contribute meaningfully to students' career interests. With its inclusion, the predictive strength of both POT and ERCI declined slightly (to 0.180 and 0.194, respectively), but all remained significant. This suggests that while each factor makes a unique contribution, they may partially overlap in shaping perceptions, particularly where educational experiences intersect with technological and curricular innovations. The model's R^2 rose to 18.9%, reinforcing the importance of pedagogical quality in fostering career interest.

In Model 4, Perceived Barriers and Facilitators were added. The beta coefficient for PBF was 0.088, but with a p-value of 0.076, it failed to reach statistical significance. It suggests that perceived obstacles or supports in fields such as job security, career progression, or societal perceptions may not significantly influence students' career attractiveness when more proactive and structural factors, like education and technology, are taken into account. The non-significant result implies that these perceptions are possibly mediated or overshadowed by more immediate educational experiences. This model contributed only a marginal increase in R^2 to 19.5%, indicating limited additional explanatory power.

The final and most comprehensive model, Model 5, introduced Future Outlook and Industry Resilience (FOIR). This variable demonstrated a significant positive impact, with a beta coefficient of 0.203 and $p < 0.001$. This finding suggests that students who perceive the construction industry as stable, adaptable, and resilient in the face of future challenges are more likely to consider it an attractive career choice. In this model, POT ($\beta = 0.152$), ERCI ($\beta = 0.162$), and ITLM ($\beta = 0.159$) all remained statistically significant, though slightly reduced in strength, suggesting that FOIR captures an additional, complementary dimension of career attractiveness related to long-term security and industry evolution. Conversely, PBF's influence further diminished ($\beta = 0.060$) and remained non-significant ($p = 0.204$), confirming its limited direct role in predicting ACC. The final model explained 23.1% of the variance in ACC, and all significant predictors had p-values below 0.01, underscoring the robustness of the model. Notably, the Durbin-Watson statistic was 2.057, indicating no autocorrelation in residuals, and the standard errors across models were acceptably low, confirming the stability of the estimates.

The regression results suggest that the attractiveness of construction careers is shaped most significantly by a combination of forward-thinking educational strategies and perceptions of the industry's future relevance. Perception of Technology, Curriculum Integration, and Innovative Teaching emerged as consistently strong predictors, highlighting the importance of aligning educational environments with technological change and industry needs. Additionally, Future Outlook and Industry Resilience play a vital role, emphasizing the necessity of communicating the evolving, resilient nature of the construction industry to future entrants. In contrast, Perceived Barriers and Facilitators were not significant predictors when these more proactive variables were considered, suggesting that shaping positive educational and industry perceptions may be more effective in attracting new talent than simply addressing perceived obstacles.

The results of this research, collectively, meet the research aims fully and directly inform the main research question on the attractiveness of construction careers to the next generation. With reference to the first objective, consideration of career influences yielded that innovation in technology, digital competence, and career development opportunities were ranked above the conventional factors of safety, highlighting the need to project construction as a modern and dynamic sector. The findings on learning readiness showed consistency with the second objective, indicating that students, in total, consider themselves well-prepared; however, they also reinforce ongoing practice-based and online training gaps, highlighting the necessity for curriculum alignment with industry needs. The third objective has been verified by the high impact of technology on learners' interest, ensuring that digital change is a determining driver of career selection. Lastly, regression analysis, as outlined in the last objective, the study revealed that curriculum reform, innovative teaching, and perceptions of industrial resilience are predictors of construction attractiveness, surpassing perceived obstacles. Taken as a whole, these results highlight the importance of the synthesis of technological advances and educational innovation in overcoming labor shortages and ensuring the long-term sustainability of the UK construction industry.

V. Discussion

This study aimed to examine the effect of several factors, such as POT, ERCI, ITLM, PBF, and FOIR, on ACC among youth. The research findings have substantial implications that extend beyond educational systems, industry practices, policy measures, and future workforce planning, particularly for developing economies facing talent deficits in the construction industry. The most powerful predictor, FOIR, focuses on the fact that youth are motivated by how they envision the future opportunities, innovation path, and social status associated with a career path. It is especially significant in the construction industry, which is traditionally perceived as hard-labor-oriented, male-dominated, and lacking intellectual significance [34]. Therefore, stakeholders must work in concert to redefine the construction career narrative, focusing on technological advancements, sustainability, digital engineering, and green building standards. Gardiner and Goedhuys [35] suggested that policymakers and industry leaders launch targeted national awareness campaigns leveraging social media, virtual career fairs, and youth ambassadors to communicate the sector's modernization. Strategic partnerships with influencers, alums, and successful role models can humanize the profession, reduce generational bias, and align career choices with aspirations for upward mobility, environmental impact, and economic stability [36]. Chan *et al.* [37] highlighted that rebranding industry reputation through sustainability and digitalization efforts is crucial to connect with the younger generations. There is also a general perception that young professionals are drawn to industries that convey a distinct vision of technological advancement and contribution to society [38]. This implies that forward-looking communication, emphasizing the focus areas of digital twins, smart cities, and climate-resilient infrastructure, can significantly enhance the attractiveness of careers in construction.

The educative impact of ERC lends momentum to the imperative of aligning education with employment. Conventional school models—often criticized for their theoretical emphasis—need to shift towards more practical learning paradigms. Some of these comprise project-based training, skill contests, certification programs in BIM, and the incorporation of industry-standard software packages in technical education. National education institutions and TVET boards should institute curriculum audits in partnership with industry. This would ensure that academic outputs align with current labor market needs [39]. In addition, guidance counsellors and career advisors should be retrained to provide data-driven, sector-specific career guidance, ensuring students receive accurate information on growth fields, earning potential, and career development routes within the construction sector.

Loosemore *et al.* [40] listed a list of direct impacts on the incorporation of digital skills into early education pipelines of construction careers. They have demonstrated that when universities incorporate applied knowledge of construction software, sustainability classes, and realistic case simulations, students perceive the sector as innovative and novel compared to antiquated approaches. The results further show that ITLM is also an important predictor of favorable career attitudes [41]. This result highlights the influence of organized experiential education on career desire, including apprenticeships, job shadowing, field visits, and capstone projects. Research has confirmed that exposure to such effects enhances skill development and creates confidence and loyalty to the profession [42]. Killip [43] also depicted that governments, education, and labor ministries ought to persuade companies to make pre-emptive, systematic, and balanced access to internships a competitive benefit. The incentives might be tax advantages, training allowances, or talent pipelines between the state and the external world. Otherwise, the system of dual education, applied in Germany and Switzerland, might be introduced, which combines academic training with work experience in industries. This is also supported by evidence that similar approaches can be effective. As an example, one can see a successful implementation of these approaches in Singapore [44] and South Korea [45], where industry-linked training is common and thus is a valid source of improving youth employability and sector retention. Predominantly, these models encounter the structural collaboration between different stakeholders, including institutes, the government, and construction firms.

As mentioned by Xinming [46], this exercise enables students to switch between divergent projects, which in turn boosts their technical and managerial exposure. On the other side, it is critical for their proficiency and also fosters their long-term career commitment [46]. Notably, PBF did not have statistical significance in the final model, a paradigm shift from previous norms, where family influence was key in career choices [47]. This change could signify that Gen Z youth are experiencing greater autonomy and digital independence, with their choices being more heavily influenced by peer networks, online platforms, and real-world experiences than by parental expectations [48]. However, this does not make family involvement unnecessary. Instead, career development initiatives should employ a multi-actor strategy, involving families, teachers, and employers, to establish an integrated support system for career choice. Workshops, collaborative student-parent career counselling, and culturally tailored engagement activities can remain effective, particularly in traditional or rural settings.

This is in line with a recent study by Rahman *et al.* [49], where they noted that Gen Z more and more makes independent choices because of increased exposure to online platforms and peer-influenced communities. In contrast to older generations, they depend less on parental influence and more on information pooled via LinkedIn, online career forums, and industry webinars. This autonomy reconfigures how recruitment campaigns must be framed, departing from family-oriented persuasion to interactive youth-driven engagement techniques like gamified career gateways and peer mentorship networks [50].

Since most respondents fell within the 18–30 age range, interventions should be tailored to this transition phase from education to early career [51]. The group is susceptible to value-based messaging, flexible work arrangements, and well-defined progression ladders [52]. It is critical that recruitment campaigns and educational outreach present construction not merely as a job but as a career of purpose and innovation. Innovative construction trends, AI adoption, and urban sustainability can be harnessed to make the industry state-of-the-art and socially responsive, attracting idealistic, entrepreneurial young professionals [53].

Innovative building patterns, AI implementation, and urban sustainability can be used to bring the sector up-to-date and socially responsible, engaging idealistic, entrepreneurial young professionals [54, 55]. Robotics in building, modular home systems, and carbon-free infrastructure are specific instances of how the sector is changing. Research indicates that if these innovations are presented well, young professionals consider building intellectually demanding and socially meaningful, neutralizing traditional images of the industry [56, 57].

VI. Conclusion

This research examined the key drivers for ACC, POT, ERCI, ITLM, PBF, and FOIR. Hierarchical regression analysis revealed that ERCI, ITLM, and FOIR are significant predictors of ACC, underscoring the crucial role of contemporary curriculum reforms, engaging and adaptive pedagogies, and a forward-looking, resilient construction industry in enhancing the attractiveness of construction careers. Although POT in the initial model had a significant impact, this decreased once systemic educational and industry factors were controlled. It suggests that individual perceptions alone might be insufficient without an enabling educational and institutional environment. PBF also did not significantly affect the final model, implying that barriers and facilitators need to be contextualized within a wider system-level support to influence career attractiveness significantly. Findings highlight the need for collective action among educators, policymakers, and industry leaders to reframe the narrative of construction careers. With the construction industry undergoing rapid changes due to accelerated technological innovation and shifts in the workforce, forward-looking education and policy actions must address talent deficits and redefine public perception. The results recommend a multi-dimensional, forward-thinking strategy for construction workforce development—aligning new teaching methods with curricular innovation and long-range industry vision. Stakeholders are encouraged to commit to systemic transformation to recruit the next generation of professionals and ensure a durable, forward-thinking construction industry. The moment to act is now—to construct buildings and an inspiring, diverse future for the profession itself.

As a closing thought, this study suggests that to create a more appealing construction industry for future professionals, it is essential to incorporate new industry practices and technologies into academic programs to ensure relevance and interest. Thus, organizations must adopt and innovate teaching methods by employing engaging and experiential pedagogies that appeal to modern learners. Additionally, there is a pressing need to emphasize the construction industry's ability to adapt and remain stable in the long term, particularly in the face of potential entrants. Thus, executing these strategies can make the construction sector a vibrant and fulfilling career option, addressing the needs of today's workforce.

Conflict of Interest

The author declares no conflict of interest.

REFERENCES

[1] G. Woolcott, M. Loosemore, R. Keast, A. Meltzer, and S. Alkilani, "Transitioning young people into employment in the Australian construction industry: The trust-building role of project-based intermediaries," *Eng. Constr. Archit. Manag.*, vol. 32, no. 4, pp. 2571–2589, 2025.

[2] A. Barford, *Youth Futures under Construction*, British Academy, 2023.

[3] O. I. Olanrewaju, N. Chileshe, E. O. Adekunle, and C. Salihu, "Modelling the environmental, economic, and social impacts of the coronavirus pandemic on the construction industry," *International Journal of Construction Management*, vol. 24, no. 14, pp. 1485–1498, 2024.

[4] J. Li, Z. Liu, G. Han, P. Demian, and M. Osmani, "The relationship between Artificial Intelligence (AI) and Building Information Modeling (BIM) technologies for sustainable building in the context of smart cities," *Sustainability*, vol. 16, no. 24, 10848, 2024.

[5] F. Wang, "Exploring talent development pathways in the construction industry amid digital transformation," in *Proc. 2024 4th International Conference on Internet Technology and Educational Informatization (ITEI 2024)*, 2024, pp. 20–29.

[6] S. Badi and M. Nasaj, "Cybersecurity effectiveness in UK construction firms: An extended McKinsey 7S model approach," *Eng. Constr. Archit. Manag*., vol. 31, no. 11, pp. 4482–4515, 2024.

[7] Li and M. Pilz, "International transfer of vocational education and training: A literature review," *Journal of Vocational Education & Training*, vol. 75, no. 2, pp. 185–218, 2023.

[8] T. Zomer, A. Neely, R. Sacks, and A. Parlikad, "Exploring the influence of socio-historical constructs on BIM implementation: An activity theory perspective," *Constr. Manag. Econ*., vol. 39, no. 1, pp. 1–20, 2021.

[9] M. Chui, M. Issler, R. Roberts, and L. Yee. (2023). Technology trends outlook. [Online]. Available: http://dln.jaipuria.ac.in:8080/jspui/bitstream/123456789/14260/1/Mckinsey-technology-trends-outlook-2023.pdf

[10] X. Chen, A. Y. Chang-Richards, A. Pelosi et al., "Implementation of technologies in the construction industry: A systematic review," *Eng. Constr. Archit. Manag.*, vol. 29, no. 8, pp. 3181–3210, 2022.

[11] J. Crowther and S. O. Ajayi, "Impacts of 4D BIM on construction project performance," *Int. J. Constr. Manag*., vol. 21, no. 7, pp. 724–737, 2021.

[12] N. V. Tam, N. Q. Toan, V. V. Phong, and S. Durdyev, "Impact of BIM-related factors affecting construction project performance," *Int. J. Build Pathol. Adapt*., vol. 41, no. 2, pp. 454–475, 2023.

[13] K. Das, S. Khursheed, and V. K. Paul, "The impact of BIM on project time and cost: Insights from case studies," *Discov. Mater*., vol. 5, no. 1, p. 25, 2025.

[14] F. Elghaish, S. Matarneh, S. Talebi, M. Kagioglou, M. R. Hosseini, and S. Abrishami, "Toward digitalisation in the construction industry with immersive and drones technologies: A critical literature review," *Smart Sustain Built Environ*., vol. 10, no. 3, pp. 345–363, 2021.

[15] J. M. Nwaogu, Y. Yang, A. P. Chan, and H. L. Chi, "Application of drones in the Architecture, Engineering, and Construction (AEC) industry," *Autom Constr*., vol. 150, 104827, 2023.

[16] M. Arabshahi, D. Wang, J. Sun *et al*., "Review on sensing technology adoption in the construction industry," *Sensors*, vol. 21, no. 24, p. 8307, 2021.

[17] European business magazine awards 2025—EBM. European Business Magazine. [Online]. Available: https://europeanbusinessmagazine.com/european-business-magazine-awards/

[18] Y. G. Sahin and U. Celikkan, "Information technology asymmetry and gaps between higher education institutions and industry," *J. Inf. Technol. Educ. Res*., 2020.

[19] S. H. Husain, A. I. Che-Ani, H. M. Affandi, N. M. Nasri, and N. A. Musid, "Mismatch in supply and demand of building surveying graduates' skills: A triangulation perspective," *J. Tech. Educ. Train*, vol. 12, no. 4, pp. 70–80, 2020.

[20] O. O. Adepoju and C. O. Aigbavboa, "Assessing the knowledge and skills gap for construction 4.0 in a developing economy," *J. Public Aff*., vol. 21, no. 3, p. e2264, 2021.

[21] S. Jin, "Interdisciplinary perspective on architectural programming: Current status and future directions," *Eng. Constr. Archit. Manag*., 2024.

[22] F. C. Tseng, M. H. Huang, and D. Z. Chen, "Factors of university-industry collaboration affecting university innovation performance," J. Technol. Transf., vol. 45, pp. 560–577, 2020.

[23] K. Oti-Sarpong, E. A. Pärn, G. Burgess, and M. Zaki, "Transforming the construction sector: An institutional complexity perspective," *Constr. Innov*., vol. 22, no. 2, pp. 361–387, 2022.

[24] A. Hajirasouli and S. Banihashemi, "Augmented reality in architecture and construction education: State of the field and opportunities," *Int. J. Educ. Technol. High Educ*., vol. 19, no. 1, p. 39, 2022.

[25] M. A. AlGerafi, Y. Zhou, M. Oubibi, and T. T. Wijaya, "Unlocking the potential: A comprehensive evaluation of augmented and virtual reality in education," *Electronics*, vol. 12, no. 18, p. 3953, 2023.

[26] A. Pamidimukkala and S. Kermanshachi, "Occupational challenges of women in the construction industry: Development of overcoming strategies using the Delphi technique," *J. Leg. Aff. Dispute Resolut. Eng. Constr.*, vol. 15, no. 1, 04522028, 2023.

[27] B. J. Jackson, *Construction Management JumpStart: The Best First Step toward a Career in Construction Management*, 3rd ed., John Wiley & Sons, 2020.

[28] European Business. [Online]. Available: https://europeanbusinessmagazine.com/

[29] K. Dziekonski, F. Mascarenhas, A. M. Mahamadu, and P. Manu, "Investigation into the key barriers to achieving UK 'Construction 2025' strategy targets," *Eng. Manag. Prod. Serv*., vol. 15, no. 4, 2023.

[30] J. Ruohonen and P. Timmers, "Early perspectives on the digital Europe programme," arXiv Print, arXiv: 2501.03098, 2025.

[31] A. Akudugu, "Effectiveness of competency-based training on acquiring industry desired competencies of agricultural engineering students in Tamale Polytechnic, Ghana," Ph.D. dissertation, 2017.

[32] E. M. Coonan and S. Pratt-Adams. (2018). Building higher education curricula fit for the future: How higher education institutions respond to the industrial strategy. [Online]. Available: https://aru.figshare.com/articles/report/Building_higher_education_curricula_fit_for_the_future_how_higher_education_institutions_are_responding_to_the_Industrial_Strategy/23783673

[33] A. Scales-Nimoh, "Bridging the gap: Exploring organisational support and learning transfer dynamics in today's workplace," Ph.D. dissertation, Capella University, 2024.

[34] A. K. Singh, S. A. Meshram, V. Khandelwal, P. Tiwari, and P. Singh, "Implementation of industry-based perspective in technical education: A qualitative and quantitative analysis," *Industrial and Manufacturing Designs: Quantitative and Qualitative Analysis*, pp. 321–346, 2024.

[35] D. Hossan, Z. D. Mansor, and N. S. Jaharuddin, "Research population and sampling in a quantitative study," *Int. J. Bus. Technopreneurship*, vol. 13, no. 3, pp. 209–222, 2023.

[36] L. M. Novosel, "Understanding the evidence: Non-probability (Non-random) sampling designs," *Urol. Nurs*., vol. 43, no. 5, 2023.

[37] A. P. Chan, D. Scott, and A. P. Chan, "Factors affecting the success of a construction project," *Journal of Construction Engineering and Management*, vol. 130, no. 1, pp. 153–155, 2004.

[38] A. Çela, E. Mansi, and F. Morina, "Young adults' pathway to digital entrepreneurship: From ideas to innovation," *European Journal of Innovation Management*, 2024.

[39] F. Minooei, P. M. Goodrum, and T. R. Taylor, "Young talent motivations to pursue craft careers in construction: The theory of planned behaviour," *J. Constr. Eng. Manag*., vol. 146, no. 7, 04020082, 2020.

[40] M. Loosemore, S. Z. Alkilani, and A. W. Hammad, "The job-seeking experiences of migrants and refugees in the Australian construction industry," *Building Research & Information*, vol. 49, no. 8, pp. 912–929, 2021.

[41] D. Gardiner and M. Goedhuys, *Youth Aspirations and the Future of Work: A Review of the Literature and Evidence*, ILO Working Paper, 2020.

[42] M. Sposato, "Navigating the future: Aligning skills, employability, and career aspirations in the digital age," *Career Coaching and Employability Skills Acquisition*, IGI Global, pp. 345–364, 2025.

[43] G. A. Killip, "A reform agenda for UK construction education and practice," *Build Cities*, vol. 1, no. 1, 2020.

[44] A. Taofeek, F. Hamzah, W. Liang, M. B. Peterson, A. Rajuroy, and P. Adekola. (2025). Developing dynamic vocational training frameworks through sustained industry collaboration: A strategic approach to workforce readiness. [Online]. Available: https://www.researchgate.net/profile/Ben-Peterson-11/publication/394089351_Developing_Dynamic_Vocational_Training_Frameworks_Through_Sustained_Industry_Collaboration_A_Strategic_Approach_to_Workforce_Readiness/links/6888ff7c0786937984557774/Developing-Dynamic-Vocational-Training-Frameworks-Through-Sustained-Industry-Collaboration-A-Strategic-Approach-to-Workforce-Readiness.pdf

[45] D. Kim and H. Woo, "An analysis of trends and policy studies in the overseas construction market for effective international development cooperation and the creation of job opportunities for the youth," *Journal of Housing and Urban Finance*, vol. 9, no. 1, pp. 69–94, 2024.

[46] Z. Xinming, "Research on cultivating innovation and practical skills in

higher vocational education," *Frontiers in Educational Research*, vol. 6, no. 26, pp. 29–36, 2023.
[47] S. J. Hitt, R. Hairstans, D. Oloke, S. Bertasso, G. Tamagnone, and B. Shirley, "Developing modern construction professionals with a focus on timber—A UK case study," *Proc. Inst. Civ. Eng. Manag. Procure Law*, vol. 178, no. 1, pp. 32–40, 2024.
[48] H. Lingard, M. Turner, and P. Pirzadeh, "Is construction my industry of choice? Examining the factors affecting career choice decision-making of young workers," *Engineering, Construction and Architectural Management*, 2025.
[49] B. Kroon. (2024). Recruitment in the digital age; Identifying the most effective online channels for different generations. [Online]. Available: http://arno.uvt.nl/show.cgi?fid=181334
[50] L. Li, "Education supply chain in the era of Industry 4.0," *Syst. Res. Behav. Sci.*, vol. 37, no. 4, pp. 579–592, 2020.
[51] J. Jayawardana, M. Sandanayake, S. Jayasinghe, A. Kulatunga, and G. Zhang, "Key barriers and mitigation strategies towards sustainable prefabricated construction—A case of developing economies," *Eng. Constr. Archit. Manag*., 2024.
[52] P. Piroozfar, E. R. Farr, A. H. Zadeh, S. T. Inacio, S. Kilgallon, and R. Jin, "Facilitating Building Information Modelling (BIM) using Integrated Project Delivery (IPD): A UK perspective," *J. Build Eng*., vol. 26, 100907, 2019.
[53] M. Ogunnusi, M. Hamma-Adama, H. Salman, and T. Kouider, "COVID-19 pandemic: The effects and prospects in the construction industry," *Int. J. Real Estate Stud*., vol. 14, no. 2, 2020.
[54] B. C. Weber-Lewerenz and M. Traverso, "Navigating applied Artificial Intelligence (AI) in the digital era: How smart buildings and smart cities become the key to sustainability," *Artificial Intelligence and Applications*, vol. 1, no. 4, pp. 214–227, Jul. 2023.
[55] T. Egbelakin, O. Ogunmakinde, and A. Sojobi, *Innovations, Disruptions and Future Trends in the Global Construction Industry*, London, UK: Routledge, 2024.
[56] S. O. Atiku, A. Jeremiah, E. Semente, and F. Boateng, *Eco-innovation and Sustainable Development in Industry 5.0*, IGI Global, 2024.
[57] H. Lehtimäki, S. S. Taylor, and M. G. Lyra, *Art and Sustainability Transitions in Business and Society: Theoretical Insights and Engagement*, Springer Nature, 2024.